THE EFFECTS OF SELF-MONITORING AND SUPERVISOR FEEDBACK ON STAFF PERFORMANCE IN A RESIDENTIAL SETTING

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We evaluated the effects of a self-monitoring procedure to increase staff on-task behavior and adherence to scheduled activities. Self-monitoring involved the use of activity cards that staff members completed and carried with them to assist in determining the activities for which they were responsible at any given time. Increases in both on-schedule and on-task behavior resulted. Supervisor feedback was subsequently added because some staff members did not maintain consistently high levels of performance. Generalization data indicated that staff members implemented the procedure during evening hours without specific programming. The advantages and limitations of using a self-monitoring procedure for improving performance of staff members in residential settings are discussed.

DESCRIPTORS: developmental disabilities, self-monitoring, supervisory feedback systems, staff, self-management

The management of behavior of staff members in residential settings for the severely developmentally disabled has been a topic of concern to behavioral scientists for many years (e.g., Burg, Reid, & Lattimore, 1979; Burgio, Whitman, & Reid, 1983; Greene, Willis, Levy, & Bailey, 1978; Iwata, Bailey, Brown, Foshee, & Alpern, 1976). Research has focused on the staff in this particular

environment because their duties are critical to the day-to-day welfare of each resident and must often be performed with little or no obvious naturally occurring reinforcement.

Staff management procedures often involve supervisory responsibilities in providing praise, performance posting (e.g., Brown, Willis, & Reid, 1981; Greene et al., 1978; Page, Iwata, & Reid, 1982), behavioral lotteries (e.g., Iwata et al., 1976), contingent money (e.g., Pommer & Streedbeck, 1974), group contingencies (e.g., Reid, Schuh-Wear, & Brannon, 1978), modeling (e.g., Gladstone & Spencer, 1977), and sometimes punitive sanctions (e.g., Repp & Dietz, 1979). More recently, investigators have examined the application of self-monitoring procedures to staff management programs. Burgio et al. (1983), for example, taught staff members to set daily goals, monitor their own behavior, graph data, and administer self-praise. In

general, self-monitoring procedures have been effective in managing staff behavior when used as part of multifaceted programs with varying degrees of supervisory involvement (e.g., Burg et al., 1979; Burgio et al., 1983; Ivancic, Reid, Iwata, Faw, & Page, 1981; Kissel, Whitman, & Reid, 1983; Korabek, Reid, & Ivancic, 1981). Such procedures may, for example, assist staff to adhere to work schedules in order to conduct scheduled programs appropriately and to meet the various needs of clients. The purpose of the present investigation was to determine whether a self-monitoring procedure, with minimal supervisory involvement, could increase adherence to scheduled activities and on-task behavior. In addition, generalization measures were collected to determine whether these behaviors were affected throughout the work shift.

METHOD

Participants and Setting

The study was conducted in two of four houses of an intermediate care facility for mentally retarded persons. One male and 4 female staff members in House A and 3 female and 2 male staff members in House B participated. The subjects were between 20 and 40 years old, had at least a high-school education, and had from 1 month to 5 years of experience working with mentally retarded persons. They comprised the entire afternoon shift of attendant personnel in both houses.

Behavioral Definitions

Two categories of behavior were adapted from previous studies (Burg et al., 1979; Iwata et al., 1976):

On-schedule behavior. Subjects were scored as on-schedule only if they were in the assigned activity according to the posted schedule, with all of the materials present that were listed on the activity card for the specific activity, regardless of whether they were implementing the scheduled program. For example, a staff member scheduled to be teaching a clothes-sorting task and observed in the correct location with all of the appropriate materials but reading a magazine was scored as on-schedule even

though he or she was not implementing the teaching protocol (off-task).

On-task behavior. Subjects were scored as on-task, regardless of whether the criteria for on-schedule were met, if they were engaging in behaviors defined by house supervisors as appropriate for any of the three scheduled activities: group, client/house custodial, or one-to-one training. These behaviors included, for example, correctly prompting a client during a group activity or putting away supplies. Specifically, a staff member was scored as on-task if he or she was prompting a client in a group activity even though the scheduled activity was a one-to-one training session (off-schedule).

Observation System

Three months prior to data collection, staff were informed at a general meeting that staff and client interactions were to be observed as part of a special project. Subjects were told that the data collected would not be used in determining promotion or continued employment. Three undergraduates, one graduate student, and the first author (who also served as experimenter) served as observers.

Observations were conducted between 3:30 and 5:00 p.m., Monday through Friday. The observer entered the area and recorded the location and first behavior emitted by each staff person within 5 s. The order in which staff were observed was determined by their location, beginning with the staff member nearest to the entrance used by observers. Observations were repeated approximately every 5 min. Twelve observations were conducted each day in House A; 18 observations were conducted in House B.

Generalization Probes

Observations were also conducted in the same manner at a different time once each weeknight between 7:00 and 8:00 p.m. The activities carried out by staff between these hours were essentially the same as those conducted during the afternoon observation session.

Reliability

Reliability checks for all measures of staff behavior were conducted by two independent ob-

servers across at least 50% of the sessions distributed equally across conditions. An agreement was counted only if both observers recorded the same behavior during the same observation interval. Interobserver agreement on occurrence, nonoccurrence, and overall occurrence plus nonoccurrence was determined (Bailey & Bostow, 1979). When summed across staff and each condition, overall agreement for on-schedule was 100% for Houses A and B. Reliability for on-task occurrence agreement, when summed across all staff in House A, averaged 89% (range, 50% to 100%) and was 85% (range, 25% to 100%) for House B. During generalization probes, overall agreement for on-schedule was 100% for both houses. For staff in Houses A and B, occurrence reliability for on-task averaged 89% (range, 0% to 100%) and 98% (range, 67% to 100%), respectively.

Experimental Procedures

Baseline. A daily schedule of day-room activities assigned to staff was posted on a master schedule in each house. Activities included preparing and participating in zone (group training) activities (Lelaurin & Risley, 1972), conducting one-to-one training sessions, and attending to client and house custodial duties (e.g., making beds, cleaning clients after toileting accidents). Each zone activity was accompanied by a card that specified how to conduct the activity and a list of the necessary materials. In general, an individual staff member was assigned to zone activities for 2 or 3 hr a day, custodial duties for 2 or 3 hr a day, breaks totaling 50 min, and two or three one-to-one training sessions. This scheduling system remained in effect throughout the investigation (Bailey & Reiss, 1984). Shift supervisors were assigned to collect data on staff behavior twice daily during zone activities. Graphs of these data were to be posted and verbal feedback was to be given to staff members on a daily basis.

In-service. An in-service led by the experimenter was conducted to inform staff members of the responsibilities of his or her job position, to explain the reason for specific job assignments, and to ensure that he or she could accurately follow a schedule. In addition, staff members rehearsed ways of interacting with clients (e.g., how to prompt, rein-

force). After each staff member had successfully completed the simulations, a smaller copy of the regularly posted staff schedule was passed out and staff members reviewed where they were supposed to be at various times.

Self-monitoring. Each staff member was given a copy of the posted staff schedule and an individual schedule card that had the shift broken down into half-hour blocks on one side of the card and a copy of the definitions for appropriate on-task behavior on the reverse side. Staff members copied their schedules from the master schedule onto the individual cards. The experimenter then explained how the staff should use the card throughout the shift.

Each day members of the 3:00 to 11:00 p.m. shift filled out their cards from the master schedule as soon as they reported for work. The experimenter then initialed each staff member's card. Staff members were instructed to initial their cards after each activity on their schedule had been completed (signifying that he or she was present) or write an explanation on the card specifying the reason they were unable to carry out the assigned activity (e.g., an emergency with a client). At the end of the shift, the cards were placed in a box in the staff office.

Feedback plus self-monitoring. Supervisory staff were trained on the behavior definitions and the individual schedule cards. Supervisors were taught to give feedback in each type of situation they might observe staff members and where to record it. Practice sessions were conducted during which supervisors were given several sample situations describing the staff member's scheduled activity, where he or she was actually located, and the behavior in which the member was engaged. Feedback was provided on the accuracy of responses.

Direct care staff were given feedback by supervisors at two different times each weekday between the hours of 3:30 and 5:00 p.m. Supervisors provided feedback on the staff's schedule-following and on- or off-task behavior at different times each day based on their schedules for that particular day. The supervisor located each staff member and recorded the first behavior of that employee. Supervisors either praised or corrected each staff member based on the activity and behavior displayed. Su-

pervisors and observers never conducted observations together.

Experimental Design

A multiple baseline design across groups of staff in the two houses was used. Within each house, the in-service, self-monitoring, and self-monitoring plus feedback conditions were instituted simultaneously for all staff.

RESULTS

Group On-Schedule and On-Task Behavior

Figure 1 displays the staff on-schedule and on-task behavior during baseline, in-service, self-monitoring, and self-monitoring plus feedback for the two houses. During baseline, staff in House A were on-schedule from 28% to 68% of the time ($M = 50\%$), and staff were on-schedule in House B from 11% to 69% of the time ($M = 39\%$).

There was no change during the in-service condition. During self-monitoring, on-schedule behavior in House A increased to a mean of 80%, and on-schedule behavior for staff in House B increased to a mean of 75%. When supervisory feedback was added, on-schedule behavior ranged from 82% to 100% ($M = 94\%$) for staff in House A and 64% to 91% ($M = 81\%$) for staff in House B.

On-task behavior was low but variable during the baseline condition ($M = 28\%$) for staff in both houses. With the in-service, mean on-task behavior for House A staff was 36%. There was no consistent change in responding in House B during this condition when compared to baseline. Introduction of the self-monitoring procedure resulted in staff in both houses demonstrating substantial increases in on-task behavior. Mean on-task behavior for Houses A and B was 72% and 77%, respectively. When feedback was added, mean on-task behavior increased to 88% in House A and 80% in House B.

Individual Subject On-Schedule and On-Task Behavior

Examination of individual staff performance during the self-monitoring condition showed that the behavior of 5 of the 10 staff members became more variable over time. Figure 2 presents the results for these subjects and demonstrates that the addition of feedback increased their mean on-task and on-schedule behavior.

On-Schedule for Specific Activities

On-schedule behavior was calculated separately for zone, one-to-one, and custodial activities to assess differences in staff behavior based on the duty performed by the direct care staff. On-schedule behavior during baseline sessions averaged 62% and 61% during zones, 28% and 12% for client/house custodial, and 32% and 54% for one-to-one training in Houses A and B, respectively. Responding decreased substantially during zone (Houses A and B) and one-to-one training (House B) while remaining essentially unchanged during the other activities. The self-monitoring condition resulted in substantial increases in on-schedule behavior when compared to the in-service phase; staff in House A increased their on-schedule behavior to means of 83%, 72%, and 81% and staff in House B increased their on-schedule behavior to means of 77%, 73%, and 52% for zones, client/house custodial, and one-to-one training, respectively. The addition of feedback resulted in further increases in all three activities for both houses, particularly for one-to-one training activities.

Generalization Probes

Figure 3 shows the results of the generalization probes. Mean baseline figures for on-schedule and on-task behavior were 22% and 36% for staff in House A and 24% and 43% in House B. Only small increases or decreases were observed with the introduction of the in-service condition. During the self-monitoring phase, mean on-schedule and on-task behavior was 63% and 70%, respectively, for staff in House A and 61% and 68%, respectively, for staff in House B. The addition of feedback resulted in a further increase in mean on-schedule behavior (74%) in House A, whereas it remained essentially unchanged in House B. On-task behavior increased in Houses A and B ($M = 79\%$ and 89%, respectively).
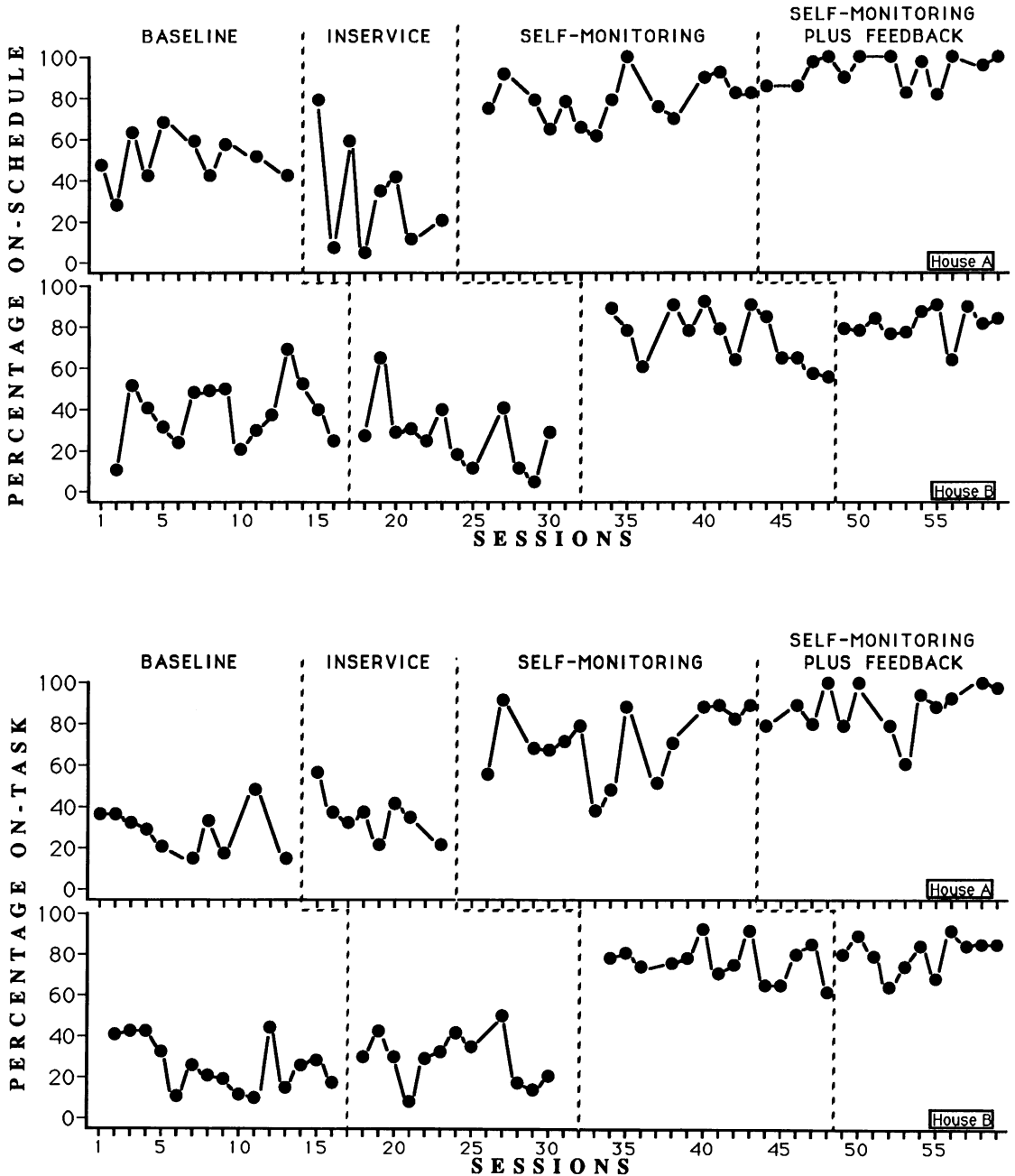
Figure 1. Percentage of observation samples per session in which staff members were on-schedule and on-task across experimental conditions.

DISCUSSION

The results of this study demonstrate that employee self-monitoring can play an important role in staff management strategies. Such improvements can be important because state and federal review teams often place extreme importance on facility staff following predetermined schedules to guarantee the safety and security of clients whose behaviors may require constant supervision. Thus, a
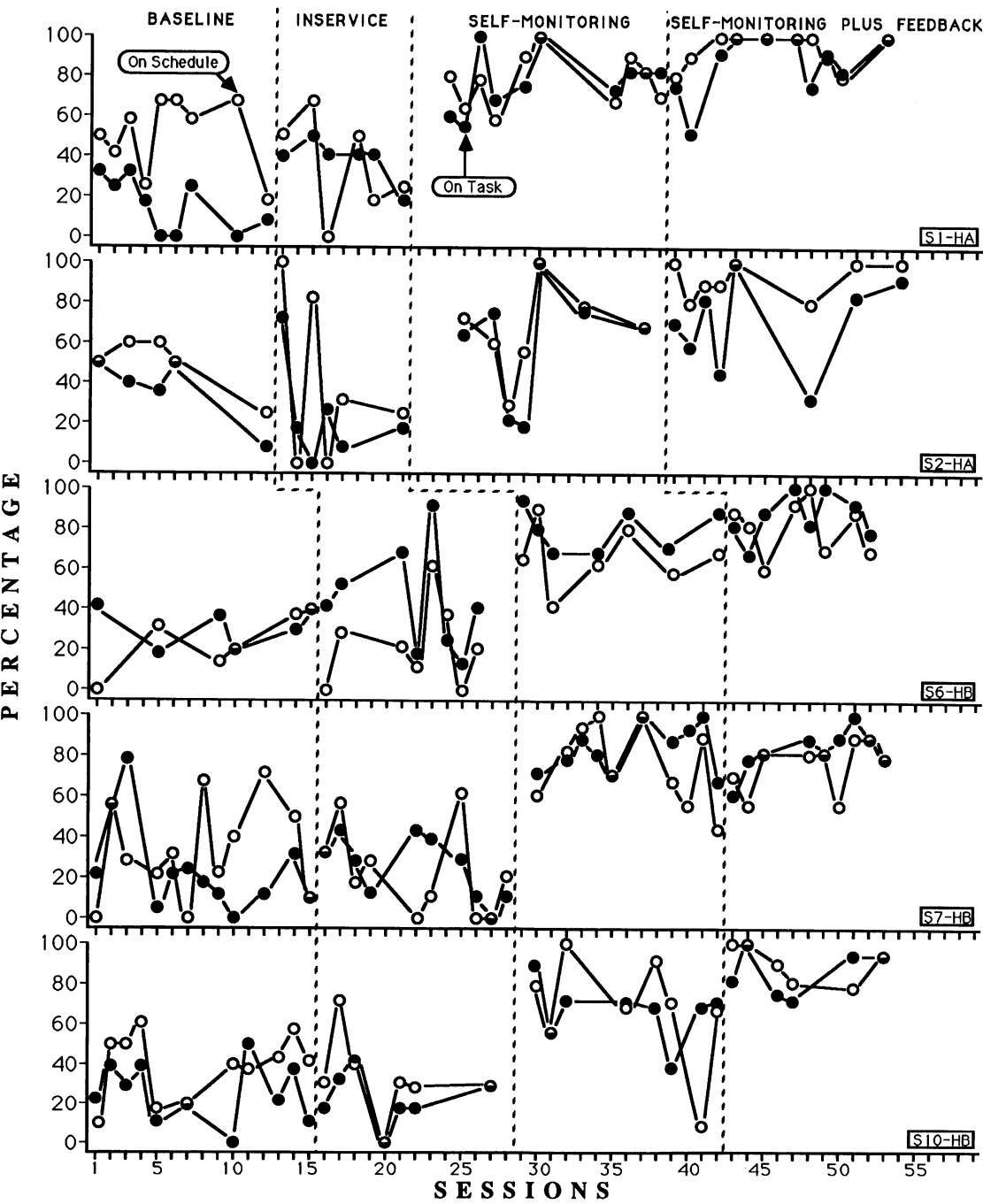
Figure 2. Percentage of observation samples in which on-schedule and on-task behavior occurred for 5 of the 10 staff members whose behavior increased in variability toward the end of the self-monitoring condition.

system that increases staff on-schedule and on-task behavior has significant validity with those who will determine the fate of the facility. It is also assumed that increased on-task and on-schedule behavior during group or zone activities (those in which staff and clients spend most of their time) also allowed staff to keep residents supervised and actively engaged.
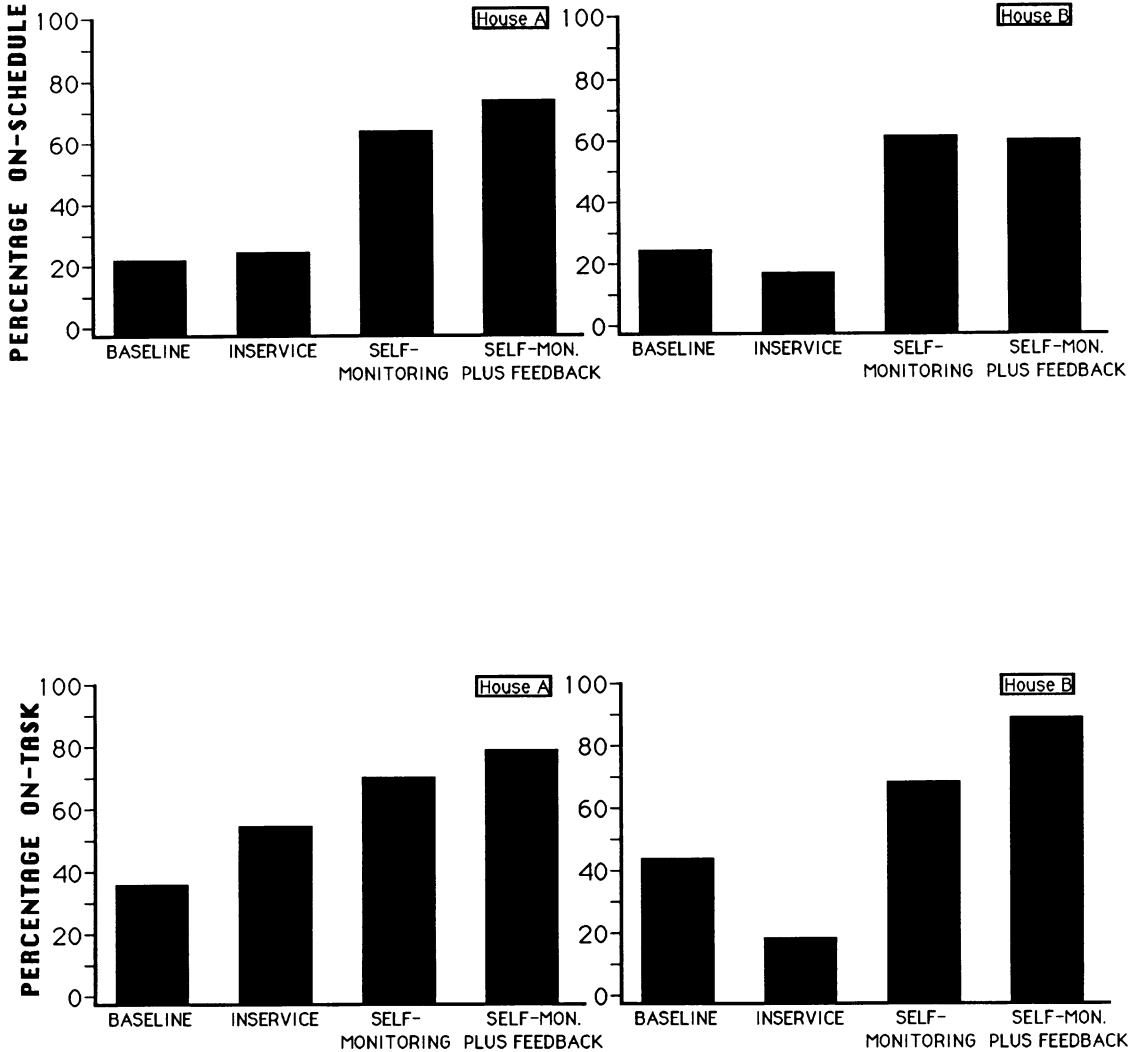
Figure 3.   Percentage of observation samples in which staff members were on-schedule and on-task during generalization night checks across experimental conditions.

When the performance of some staff members began to drift in the self-monitoring condition, a systematic feedback procedure was introduced. Consistent with the previous literature (e.g., Burgio et al., 1983), this was effective in once again increasing on-schedule and on-task behavior. It is likely that any staff management procedure that has durability will need to include this function.

In this study, providing staff with a procedure for checking daily a posted schedule and writing out their own individual schedule allowed them to engage in an "observing response" that may be important later. Such a procedure teaches staff that

written schedules are relevant and that staff members are expected to read and follow them accordingly. Rather than being primarily prompts for appropriate behavior, this procedure permits supervisors to serve as reinforcing agents for on-schedule and on-task behavior.

Some generalization of the effects of the procedures was shown during observations carried out in the evening. With no observers present and no visible contingencies involved, increases in performance were seen. Furthermore, data were collected once or twice per week on the general cleanliness of each house (e.g., locks securely fastened, trash

picked up, and hygiene items appropriately placed). The results of these house checks showed that staff were, overall, more responsive to the condition of the houses subsequent to the self-monitoring or self-monitoring plus feedback interventions. Completion of specific custodial tasks each day adds to the ambience of the setting and increases the likelihood of support from family and visitors who would otherwise be offended and concerned by dirty bathrooms, unkempt bedrooms, and other unsafe conditions.

The first author was involved in the in-service training condition, checked staff cards, and collected some of the staff on-schedule/on-task data (less than 50%). There is some chance, therefore, that the effects observed may reflect some reactivity by the staff to her presence. It must be noted, however, that most of the data were collected by independent observers who were rotated between the houses and that no systematic effects, by observer, can be seen. The observers never interacted with the staff and were naive to experimental conditions. Furthermore, staff were never informed that data were being collected specifically on their on-schedule and on-task behavior.

It is also important to note that the above procedures were demonstrated to be effective in an environment that had a clear overall organization and a variety of staff management systems in effect for other target behaviors. The effectiveness of the procedure in other situations still needs to be determined.

Data were not obtained directly on how often staff looked at and initialed their individual schedule cards, and, as a result, variables other than self-monitoring may have influenced the findings. For example, it is possible that the increase in targeted behaviors during the self-monitoring condition may have occurred as a function of implicit situational demands. The in-service conducted during this condition as well as the individual schedule card may have increased staff awareness of the importance of the target behaviors and indicated to them that consequences would be provided (even though no contingencies were actually administered). The act of turning in the card at the end of each day may

also have alerted staff to engage in the target behaviors in order to avoid perceived negative consequences or to receive perceived positive consequences (e.g., job promotion).

In previous staff management research, self-monitoring was implemented with several other procedures simultaneously so that the relative contribution of self-monitoring was not known. In this study, the significance of self-monitoring may be clearly seen; however, the possibility of sequence effects prevents a definitive analysis at this point. That is, it is not known what impact the supervisor feedback system alone would have had on these two dependent variables.

Self-monitoring provides an element of individual responsibility that is often missing in standard, top-down, supervisor-centered staff management systems. It allows employees to come under the control of discriminative stimuli present in the environment and sets the occasion for supervisors to provide positive reinforcement for worthy performance. Although no formal consumer evaluation data were collected, there was no evidence that any direct care staff found the procedures unacceptable. Support for the value of the combination of self-monitoring and feedback procedures can be seen in their formal adoption by the facility and the fact that 2 years after the completion of the research, the procedures are still in effect in this facility and have now been extended to 12 additional facilities across the state.

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